UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/551,033	09/27/2005	Takanori Saito	33082M277	4029

441 7590 08/12/2008

SMITH, GAMBRELL & RUSSELL
1130 CONNECTICUT AVENUE, N.W., SUITE 1130
WASHINGTON, DC 20036

EXAMINER	
WILSON, GREGORY A	

ART UNIT	PAPER NUMBER
3749	

MAIL DATE	DELIVERY MODE
08/12/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/551,033	SAITO ET AL.	
	Examiner	Art Unit	
	Gregory A. Wilson	3749	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 July 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *5-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *5-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *7/11/08*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 5-14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicant has amended independent claims 5 and 8 to recite that the plurality of blowing holes is formed at suitable intervals in the vertical direction of the cooling gas introducing pipe "for blowing a slewing flow of the cooling gas circumferentially about the circular space", although this limitation constitutes functional language it does not find support in the specification as originally filed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 5-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Gat (6,727,474) in view of Kato (6,403,927)**. With regard to claims 5, 7 and 10, Gat discloses a thermal processing unit (10) for conducting a thermal process to a plurality of objects (14) in a tier like manner (Figure 1) in a processing container (12) made of metal (column 5, line 38-40) and includes a heating unit (36), a cooling gas introducing unit (18, 19) having a plurality of blowing holes formed in the pipe wall for blowing out the gas and is inserted into the container in a vertical direction (height) with the blowing holes formed at suitable intervals in the vertical direction of the pipe, a circular space (within element 33) formed between the container and the plurality of objects to be processed and furthermore includes a processing container (16) which a coolant flows. While Gat appears to anticipate the applicants invention in terms of function in that it provides a cooling gas pipe structure having multiple (unlabeled) blow holes, the applicant has amended the claims in an attempt to distinguish over the prior art reference by more clearly defining the direction in which the blow holes face, which allow for cooling gas to flow in a circumferential direction. This added limitation constitutes an intended use recitation wherein a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. While Gat appears to have blow holes that face in the radial direction when looking at Figure1, the specification does not teach a specific orientation of the blow holes. Additionally, upon further inspection of Figure 1, the spray nozzle (19) shows an

unnumbered bottom hole which appears to have a different orientation than the other holes in that it appears to more clearly teach the direction of flow of cooling gas in substantially the same direction as claimed by the applicant. One of ordinary skill in the art would recognize the orientation as being such that the gas will discharge tangentially or circumferentially. While it can be concluded that the spray nozzle of Gat is intended to allow for dispersement of gas flow through the plurality of openings, emphasis on the direction in which the gas flow is dispersed is not particularly conclusive. To modify the spray nozzle of Gat, such that the holes are oriented to induce a tangential or circumferential flow would solve the design need of rapidly and more uniformly cooling an object, the fact that it would have been obvious to try any number of nozzle orientations to achieve this desired result might show that a person having ordinary skill in the art would have found it obvious under 35 U.S.C 103 (KSR Int'l Co. v. Teleflex Inc.) to modify the gas nozzles of Gat such that gas flow is dispersed tangentially out of the pipe. With regard to claims 6, 8, 9 and 11-14, Gat discloses the applicants primary inventive concept as stated above, but with regard to claim 6, Gat does not particularly teach a plurality of cooling-gas introducing pipes. It would have been obvious to one having ordinary skill in the art at the time the invention was made to increase the amount of cooling-gas introducing pipes since increasing the amount of essential working parts does not appear to solve any stated problem in a new or unexpected way or is for any particular purpose which would be unobvious to one having ordinary skill in the art. With regard to claims 9 and 11, Gat does not particularly disclose the volume of the structure nor the rate at which gas is introduced to achieve the cooling as specified

in claim 11, however it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the flow rate of the gas flow as well as the volume of the container to meet the desired need, since it has been held that where the general conditions of a claim are disclosed in prior art, discovering the optimum or workable range involves only routine skill in the art. With regard to claims 8, Gat discloses the applicants primary inventive concept, but does not describe the blowing holes as having a porous member. The applicant discloses in the specification (See page 11, line 9-17) that the function of the porous member is to reduce the flow rate of the cooling gas blown out from the holes. While Gat does not particularly teach this feature, Kato teaches the use of valves (16) connected to individual air flow channels for the purpose of controlling the flow rate of cooling gas. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the valves of Kato into the invention of Gat (specifically the cooling gas introducing unit 18, 19) for the purpose of controlling the flow therethrough since the valves of Kato serves as a functional equivalent to the applicants “porous member”.

Response to Arguments

Applicant's arguments filed 5/20/08 have been fully considered but they are not persuasive. Applicant argues that Gat teaches an intended difference in the direction of cooling gas from Saito, furthermore stating that Gat “appears” to depict spirally and vertically dispersed blow holes of nozzle 19 which blow cooling gas across the surface of the wafers providing local cooling. It cannot be concluded that Figure 1 of Gat

teaches blowing holes which are directed in different directions, but the fact that Gat teaches a spray nozzle 19 including a plurality of openings, given the applicants argument that Gat encourages local cooling and particle scattering, one of ordinary skill in the art would recognize that some of the flow from the spray nozzle will inherently flow in a direction tangentially with the wafers. In addition a claim containing a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus if the prior art teaches all the structural limitations of the claim. In this regard, Gat clearly discloses a plurality of blowing holes formed at “suitable” intervals in the vertical direction of the cooling gas introducing pipe.

Applicants' argument that Gat does not teach that each blowing hole is formed at a pipe wall of the cooling gas introducing pipe to face in the same circumferential direction is not persuasive since it cannot be reasonably concluded that Gat teaches away from having its' blowing holes in the same direction. Applicants argument that the holes of Gat “appear to be spirally dispersed about the nozzle 19 is based on speculation.

Applicants argument that Gat appears to show a non-uniform cooling citing that if the top Gat hole blows in one direction, the middle holes other directions and the bottom hole, yet another, then Gat cannot uniformly cool by the gas movement. This argument appears to be based off of the previous argument that Gat teaches away from having its' blowing holes in the same direction which is not conclusive and addtionally, applicants argument is likewise based on speculation.

Applicants arguments with regards to the newly added language: “for blowing a slewing flow of the cooling gas circumferentially about the circular space” introduces new matter and is not persuasive, furthermore applicant does not disclose specific structure which will cause a slewing flow which can distinguish over the prior art reference of Gat. As previously stated, applicants arguments with regards to the direction of the plurality of openings in the nozzle 19 of Gat is clearly speculative and is not based on evidence.

Applicants argument that Gat does not teach "the plurality of blowing holes is formed at suitable intervals in the vertical direction of the cooling-gas introducing pipe“ is not persuasive. The claimed “suitable” interval is vague and indefinite since the specification does not clearly define or discuss a spacing scheme and furthermore uses the same broad language as it is claimed. A person having ordinary skill in the art would recognize that the intervals taught by Gat anticipates the structure of the applicants claimed invention in view of the applicants specification.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory A. Wilson whose telephone number is (571)272-4882. The examiner can normally be reached on 7 am - 4:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve McAllister can be reached on (571) 272-6785. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Gregory A. Wilson/
Primary Examiner, Art Unit 3749
August 8, 2008